REMARKS

Claims 1-36 were pending in this application. Claims 1-36 stood rejected. Claims 16 and 33-36 were cancelled. Claims 1-8, 12, 14-15, 17-18, 22, 24, and 27 were amended. Claims 1-15 and 17-32 remain in the application.

Claims 1-9 and 12-36 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koba (US 6,222,947) in view of Guttman et al. ("Guttman", US 6,366,918). Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koba in view of Guttman and further in view of Wang (US 6,014,458). The rejection stated in relation to Claim 1:

"As independent claim 1, Koba teaches a digital image album layout system comprising:

"a page creator module operable to receive a set of images and user preferences and to generate album preference criteria using said user preferences, said page creator module having a first program algorithm operable to execute calculations on a first population of image criteria, said page creator module having a page evaluation module operable to test said first population for fitness to said album preference criteria, said page creator module being operable to distribute said images to a plurality of album pages responsive to said testing for fitness to said album preference criteria (col. 6, lines 43-59) and

"an image placement module operable to receive the set of images and user preferences and to generate page preference criteria using said preferences, said page creator module having a second program algorithm operable to execute calculations on a second population of page layout criteria, said image placement module having a layout evaluation module operable to test second population for fitness to said page preference criteria, said image placement module being operable to distribute said images on respective said album pages responsive to said testing for fitness to said preference criteria (col. 7, lines 37-41).

"Koba does not disclose the first program algorithm and the second program algorithm to implement genetic programming technique. Guttman teaches a genetic algorithm approach to produce the optimized publication layouts by generating and evaluating a large number of possible layouts and selects the optimum layout (col. 3, lines 1-9). It

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would have been obvious to an artisan at the time of the invention to use the teaching from Guttman of applying genetic programming in Koba's system since the advantages of the Genetic Programming approach include its robustness to changing environment, its low demand for data, and its computational speed.

Claim 1 states:

1. A digital image album layout system comprising:

a page creator module operable to receive a set of images, a plurality of different user album preferences, and a plurality of album preference importance values, each said album preference importance value indicating a weighting of a corresponding one of said user album preferences relative to the other said user album preferences, and to generate album preference criteria using said user album preferences and album preference importance values, said page creator module having a first genetic engine operable to execute genetic evolution calculations on a first genetic population of album criteria, said page creator module having a page evaluation module operable to test said first genetic population for fitness to said album preference criteria, said page creator module being operable to distribute said images to a plurality of album pages responsive to said testing for fitness to said album preference criteria;

an image placement module operable to receive the set of images, a plurality of different user page preferences, and a plurality of page preference importance values, each said page preference importance value indicating a weighting of a corresponding one of said user page preferences relative to the other said user page preferences, and to generate page preference criteria using said user page preferences and page preference importance values, said page creator module having a second genetic engine operable to execute genetic evolution calculations on a second genetic population of page layout criteria, said image placement module having a layout evaluation module operable to test said second genetic population for fitness to said page preference criteria, said image placement module being operable to distribute said images on respective said album pages responsive to said testing for fitness to said page preference criteria.

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Claim 1 is supported by the application as filed, notably the original claims and at page 17, lines 8-24.

Claim 1 requires that the page creator module is operable to receive both a plurality of different user album preferences and a plurality of album preference importance values. The album preference importance values indicate a weighting of corresponding user album preferences relative to each other. The page creator module generates album preference criteria using the user album preferences and album preference importance values and tests for fitness to those criteria following genetic evolution calculations. The image placement module does the same thing with user page preferences and page preference importance values.

The cited references, in any combination, do not teach or suggest generation of fitness criteria using user preferences and importance values <u>for those preferences</u>. Koba states, in relation to preference criteria:

"In step S203, a questionnaire is given to the user to cause the user to input the following pieces of information to the initial parameter setting means 33 by using the keyboard 7: (1) the degree of importance of each image; (2) a criterion for determining the assignment of the images to the respective pages, e.g., photographic date information or the degree of importance of each image; (3) the approximate number of images to be laid out per page; (4) the approximate layout position of each image; (5) a favorite color; and the like. For example, as (4) the layout position of each image, the user inputs information indicating his/her preference for a layout pattern, i.e., a neat layout like the one shown in FIG. 6A or an untidy layout like the one shown in FIG. 6B, in laying out three images on one page." (Kobe, col. 6, lines 7-20)

"In step S205, the initial parameter setting means 33 determines the images, of the images belonging to each group, which are to be laid out on each page. Assume that the user has designated the assignment of three images to each page in response to question (3) in step S203. In this case, if, for example, the seven images formed into the first group are sequentially laid out, from the first image, three images at a time for each page, three images are laid out on each of the first and second pages, whereas one image (the seventh image) is laid out on the third page.

When, however, only one image is laid out on the third page, the resultant layout is poor in balance with an excessive blank space. For this reason, it is determined that three images are assigned to the second page. This operation can be realized by reducing the image designated as an image with a low degree of importance by the user, as needed." (Koba, col. 6, lines 43-59)

"In step S206, the initial parameter setting means 33 sets the initial parameters required for automatic layout processing for each page. More specifically, the initial parameter setting means 33 sets the approximate layout position of each image on one page, which has been designated in response to question (4) in step S203, and a background image corresponding to the favorite color input in response to question (5) in step S203 as initial parameters. As the background image, an image with a sense of the season is set in accordance with the photographic date information input together with the images. In addition, if caption information is input, a background is set on the basis of this informtion." (Koba, col. 7, lines 20-30)

"In step S207, the automatic layout means 31 executes automatic layout processing on the basis of the initial parameter set in the above manner." (Koba, col. 7, lines 37-39)

In Koba, the user inputs the degree of importance of each image along with preferences for various page assignment and layout criteria. This is unlike the claimed invention, <u>in which importance values are not associated with individual images,</u> but rather indicate a weighting of corresponding user preferences relative to each other.

Guttman et al. optimizes a genetic population relative to costs and revenues:

"An optimal layout is a layout that satisfies advertisers' requirements, maximizes revenues, and minimizes costs." (Guttman et al., col. 8, lines 21-23)

This is unlike the claimed invention, which tests genetic populations with preference criteria generated using user preferences and importance values that indicate weightings of the user preferences relative to each other.

The rejection proposes motivation for combining Koba and Guttman et al.:

> "It would have been obvious to an artisan at the time of the invention to use the teaching from Guttman of applying genetic programming in Koba's system since <u>the advantages of the Genetic Programming approach include its robustness to changing environment, its low demand for data, and its computational speed.</u>" (emphasis added)

The rejection cites Guttman et al., col. 3, lines 1-9, in relation to motivation:

> "More specifically, the present invention uses a genetic algorithm approach to produce the optimized publication layouts. In a timely manner, the invention generates and evaluates a large number of possible layouts and selects the optimum layout. The optimal layout has an optimal relationship between the placement of advertisements and editorials on the pages of the publication resulting in a maximization of revenue and a minimization of costs." (Guttman et al., col. 3, lines 1-9)

This portion of Guttman et al. supports as an advantage only "a timely manner". The feature of "a timely manner" is not the same as robustness to changing environment, low demand for data, and computational speed. These same advantages were ascribed to Johnson (US 2001/0019630), in the Office Action mailed 11/18/2004, which stated:

> "the advantages of the Genetic Programming approach include its robustness to changing environment, its low demand for data, and its computational speed." (page 3)

Johnson, as discussed at length in the Amendment filed 3/21/2005, does not disclose a "Genetic Programming approach", but rather the use of fuzzy logic to classify images. (Genetic programming is used in Johnson to maintain the classifier. (Johnson, page 14, paragraph 0221)) The advantages of the approach of Johnson are the advantages of the use of fuzzy logic. Guttman et al. applies a genetic algorithm, which is similar to, but not the same as, applying genetic programming. Motivation for combining Guttman et al. with Koba must look to the characteristics of genetic algorithms.

A textbook discussion of genetic algorithms indicates that operation of a combination of Guttman et al. and Koba in "a timely matter", is not readily predictable:

> "Because there are many heuristics to choose as well as parameters to set, it is hard to make firm theoretical statements about building classifiers by means of evolutionary methods. The performance and search time depend upon the number of bits, the size of a population, the mutation and crossover rates, choice of features and mapping from chromosomes to the classifier itself, the inherent difficulty of the problem and possibly parameters associated with other heuristics." (*Pattern Classification*, 2nd ed., R. Duda, P. Hart, D. Stork, John Wiley & Sons, Inc., New York, 2001, page 378)

One of skill in the art, in view of the above-quote from *Pattern Classification*, would not be motivated by Guttman et al., col. 3, lines 1-9 to combine modify Koba with Guttman et al. on the basis of Guttman et al.'s discussion of "a timely manner".

The motivation to combine Koba and Guttman et al. has also not overcome the teachings of Johnson (US 2001/0019630). The mention in Johnson, of the use of genetic programming teaches or suggests that Johnson was aware of both genetic programming and genetic algorithms and, despite that knowledge, chose to use fuzzy logic in a classifier. As earlier discussed, Johnson's fuzzy logic approach has advantages, as noted in the Office Action mailed 11/18/2004.
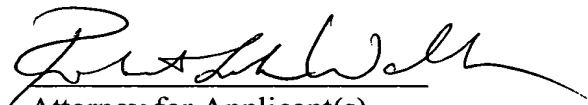
Claims 2-15 and 17-32 are allowable on the same grounds as Claim 1.

It is believed that these changes now make the claims clear and definite and, if there are any problems with these changes, Applicants' attorney would appreciate a telephone call.

In view of the foregoing, it is believed none of the references, taken singly or in combination, disclose the claimed invention. Accordingly, this application is believed to be in condition for allowance, the notice of which is respectfully requested.

Respectfully submitted,

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Enclosures: Request for Two-Month Extension of Time
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